State Office of Administrative Hearings

Kristofer S. Monson
Chief Administrative Law Judge

November 20, 2023

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RE: SOAH Docket No. 582-23-14975; TCEQ Docket No. 2023-0203-AIR; Application of Valero Refining-Texas, LP for Modification to State and Prevention of Significant Deterioration Air Quality Permit Nos. 38754 and PSDTX324M15

Dear Parties:

Please find attached a Proposal for Decision in this case.

Any party may, within 20 days after the date of issuance of the PFD, file exceptions or briefs. Any replies to exceptions, briefs, or proposed findings of fact shall be filed within 30 days after the date of issuance on the PFD. 30 Tex. Admin. Code § 80.257.

All exceptions, briefs, and replies along with certification of service to the above parties and the ALJ shall be filed with the Chief Clerk of the TCEQ electronically at http://www14.tceq.texas.gov/epic/eFiling/ or by filing an original and seven copies with the Chief Clerk of the TCEQ. Failure to provide copies may be grounds for withholding consideration of the pleadings.

CC: Service List

SOAH Docket No. 582-23-14975 **Suffix: TCEQ**

BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

APPLICATION OF VALERO REFINING-TEXAS, LP FOR MODIFICATION TO STATE AND PREVENTION OF SIGNIFICANT DETERIORATION AIR QUALITY PERMIT NOS. 38754 AND PSDTX324M15

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TABLE OF ABBREVIATIONS

Abbreviation	Term
Applicant or Valero	Valero Refining-Texas LP
Application	Application of Valero Refining-Texas, LP, Administrative Record Tab D
BACT	Best Available Control Technology
C.F.R.	Code of Federal Regulations
CAA	Federal Clean Air Act
CFEJ	Citizens for Environmental Justice
CO	Carbon monoxide
CO_2	Carbon dioxide
coke	Carbonaceous hydrocarbons
Draft Permit	Executive Director of the Texas Commission on Environmental Quality's final draft of amendment to Air Quality Permit Nos. 38754 and PSDTX324M14
ED	Executive Director of the Texas Commission on Environmental Quality
EPA	Environmental Protection Agency
Facility or West Refinery	Bill Greehey Refinery West Plant
FCCU or cracker	Fluid catalytic cracking unit
H_2S	Hydrogen sulfide
H_2SO_4	Sulfuric acid

Abbreviation	Term
HOC	Heavy oil cracker
HOC Reconfiguration Project	A project that will require new refining units to change the type of crude oil the Bill Greehey Refinery West Plant can receive and process
LAER	Lowest Achievable Emission Rate
lb	Pound
LoTOx	Low temperature oxidation
LPG	Liquified petroleum gas
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NSR	New Source Review
OPIC	Office of Public Interest Council
PM	Particulate matter
PM_{10}	Particulate matter consisting of particles with diameters less than or equal to 10 microns
$PM_{2.5}$	Particulate matter consisting of particles with diameters less than or equal to 2.5 microns
PSD	Prevention of Significant Deterioration
RBLC	EPA's RACT/BACT/LAER Clearinghouse
SCAQMD	South Coast Air Quality Management District
SCR	Selective Catalytic Reduction
SO_2	Sulfur dioxide

Abbreviation	Term
TCAA	Texas Clean Air Act, Health & Safety Code Ch. 382
TCEQ or Commission	Texas Commission on Environmental Quality
VOCs	Volatile organic compounds

SOAH Docket No. 582-23-14975 **Suffix: TCEQ**

BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

APPLICATION OF VALERO REFINING-TEXAS, LP FOR MODIFICATION TO STATE AND PREVENTION OF SIGNIFICANT DETERIORATION AIR QUALITY PERMIT NOS. 38754 AND PSDTX324M14

PROPOSAL FOR DECISION

I. INTRODUCTION

On September 30, 2021, Valero Refining-Texas, LP (Applicant or Valero) submitted an application (Application) to the Texas Commission on Environmental Quality (TCEQ or Commission) for a New Source Review Authorization under Texas Clean Air Act (TCAA) section 382.0518 to amend Air Quality Permit Nos. 38754 and PSDTX324M14. Valero seeks authorization of modifications to the Bill Greehey Refinery West Plant (Facility or West Refinery) that will emit air contaminants in Corpus Christi, Nueces County, Texas. The Executive Director of the Commission (ED) found that the Application should be approved and issued

final drafts of amended Air Quality Permit Nos. 38754 and PSDTX324M14 (collectively, Draft Permit). For the reasons discussed below, the Administrative Law Judges (ALJs) recommend the Application be denied.

Valero's Application seeks approval of a project (the HOC Reconfiguration Project) that will require new refining units to change the type of crude oil the Facility can receive and process. The HOC Reconfiguration Project includes installing a new riser reactor in its heavy oil cracker (HOC), which is a type of fluid catalytic cracking unit (FCCU or cracker) configured to handle different feedstock than a typical FCCU,[1] and a new gas plant.[2] Approval of the Application would authorize Valero to construct a new utility steam boiler, a new cooling tower, a new gas plant, a new sour water stripper, a new liquefied petroleum gas (LPG) Merox Treating Unit, a new Selective Hydrogenation Unit, a new C3/C4 Splitter Tower, and two new butane/butylene bullet tanks.[3] The Application would authorize the Facility to emit the following air contaminants: ammonia, carbon monoxide (CO), hydrogen sulfide (H_2S), nitrogen oxides (NO_x), organic compounds, particulate matter (PM) including particulate matter with diameters of 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and greenhouse gases.[4]

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[1] Transcript of the Hearing on the Merits (Tr.) at 196.

[2] An FCCU is a type of refining equipment used to convert the heavy portion of crude oil feedstock into lighter petroleum products, including liquified petroleum gas and gasoline. *See* ED Ex. ED-14 (Response to Comments) at 1073; Valero Ex. D (Administrative Record) at 6.

[3] Valero Ex. D (Administrative Record) at 6.

[4] ED Ex. ED-14 (Response to Comments) at 1064.

Citizens for Environmental Justice (CFEJ) and Office of Public Interest Council (OPIC) oppose the issuance of the Draft Permit. CFEJ argues that Valero has failed to demonstrate that the controls in the Draft Permit constitute Best Available Control Technology (BACT) for PM and NO_x. OPIC contends that Valero was unsuccessful in justifying its decision to eliminate the option of retrofitting its HOC with pollution controls to limit the emission of NO_x because it is not economically reasonable. For these reasons, CFEJ and OPIC request that the Application be denied.

Valero and the ED oppose CFEJ's allegations and endorse the ED's Preliminary Decision to Issue the Draft Permit based on the Application's representations.

II. PROCEDURAL BACKGROUND

On September 30, 2021, Valero submitted its Application to the TCEQ.[5] The TCEQ declared Valero's Application administratively complete on October 5, 2021.[6]

Valero published a Notice of Receipt and Intent to Obtain an Air Quality Permit (first public notice) for the Application in English in the *Caller Times* on

[5] ED Ex. ED-14 (Response to Comments) at 1064-65.

[6] ED Ex. ED-14 (Response to Comments) at 1065.

October 14, 2021.[7] Valero also published the notice in Spanish in *Tejano y Grupero News* on October 15, 2021.[8]

TCEQ staff from the Air Permits Division and Air Dispersion Modeling Team reviewed the application submitted by Valero in accordance with all applicable federal and state statutes, rules, and regulations. After completion of the technical review, Valero published a Notice of Application and Preliminary Decision for an Air Quality Permit (second public notice) in English in the *Caller Times* on June 1, 2022, and in Spanish in *Tejano y Grupero News* on June 1, 2022.[9] On July 11, 2022, TCEQ held a public meeting at the Atrium Hotel & Convention Center in Corpus Christi, Texas, and the public comment period ended that same day.[10] The ED mailed its Response to Public Comment and rendered a final decision to approve the Application on December 2, 2022.[11] The ED issued final Draft Permit that same day.[12]

Valero requested a direct referral to the State Office of Administrative Hearings (SOAH) on January 13, 2023, for a contested case hearing pursuant to 30 Texas Administrative Code § 55.210.[13] The TCEQ Chief Clerk mailed the Notice of

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[7] Valero Ex. D (Administrative Record), Tab B at 146.

[8] Valero Ex. D (Administrative Record), Tab B at 155.

[9] Valero Ex. D (Administrative Record), Tab B at 57.

[10] Valero Ex. D (Administrative Record), Tab B at 64.

[11] Valero Ex. D (Administrative Record), Tab C at 143-66.

[12] Valero Ex. D (Administrative Record), Tab C at 1-76.

[13] Request for Direct Referral to the State Office of Administrative Hearings (filed Mar. 21, 2023).

Public Hearing for the preliminary hearing to the applicable persons, and published it in English in the *Caller Times* on April 21, 2023 and in Spanish in *Tejano y Grupero News* on April 15, 2023.[14] On April 21, 2023, the TCEQ Chief Clerk filed the Administrative Record with SOAH which consisted of the Application (and other supporting information attached or incorporated therein), the Draft Permits, and the ED's Preliminary Decision.[15] On May 3, 2023, the TCEQ Chief Clerk filed supplemental documentation to be included as part of the Administrative Record.[16]

On May 22, 2023, ALJs Holly Vandrovec and Amy Davis convened a preliminary hearing at SOAH via the Zoom videoconferencing platform and admitted Valero, the ED, OPIC, and CFEJ as parties.[17]

At the preliminary hearing, Valero offered Exhibits A-C (prefiled jurisdictional and public notice documents) and Exhibits D and E (prefiled certified Administrative Record) for all purposes. The ALJs admitted Valero's Exhibits A-E into the evidentiary record during the preliminary hearing and determined that notice of the hearing was timely and adequate and that SOAH had jurisdiction over the proceeding.

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[14] Valero Ex. E (Supp. Administrative Record), Tab E at 1, 4.

[15] Valero Ex. A-D (Administrative Record) (filed Apr. 21, 2023).

[16] Valero Ex. E (Supp. Administrative Record).

[17] Hillcrest Residents Association also made an appearance; however, the organization was not granted party status because it did not show that one or more members of the group would otherwise have standing to request a hearing in their own right.

On August 22, 2023, the ALJs convened the hearing on the merits via Zoom. Valero was represented by attorneys Derek McDonald and Shannon Glen. CFEJ was represented by attorneys Colin Cox and Ilan Levin. The ED was represented by Staff attorney Amanda Kraynok. OPIC was represented by Staff attorney Jennifer Jamison. No other parties appeared or participated during the hearing.

Valero presented the expert testimony of Meagan Marquard and Dr. Jesse Lovegren, Ph. D., P.E. CFEJ presented the expert testimony of Dr. Ranajit Sahu, PhD, QEP, CEM.[18] The ED presented the expert testimony of Cara Hill and Justin Cherry.[19] The record closed on September 21, 2023, after the parties filed their closing arguments and reply briefs.

III. APPLICABLE LAW

A. STANDARD OF REVIEW

The Application was filed after September 1, 2015; and TCEQ referred it under Texas Water Code section 5.557, which governs direct referral of environmental permitting cases to SOAH based on a request for a contested case

[18] QEP is an acronym for Qualified Environmental Professional, and CEM is an acronym for Certified Environmental Manager (in Nevada).

[19] Valero, CFEJ, and the ED also offered a number of additional documentary exhibits which were admitted into evidence at the hearing. At the end of the hearing, Valero conditionally offered Exhibit 223 (Total Port Arthur Refinery Permit). No party filed any objections to Valero Exhibit 223, which is hereby admitted.

hearing.[20] Therefore, this case is subject to Texas Government Code section 2003.047(i-1)-(i-3),[21] which provides:

> (i-1) In a contested case regarding a permit application referred under Section … 5.557, Water Code, the filing with [SOAH] of the application, the draft permit prepared by the executive director of the commission, the preliminary decision issued by the executive director, and other sufficient supporting documentation in the administrative record of the permit application establishes a prima facie demonstration that:
>
> (1) the draft permit meets all state and federal legal and technical requirements; and
>
> (2) a permit, if issued consistent with the draft permit, would protect human health and safety, the environment, and physical property.
>
> (i-2) A party may rebut a demonstration under Subsection (i-1) by presenting evidence that:
>
> (1) relates to a matter referred under Section 5.557, Water Code …; and
>
> (2) demonstrates that one or more provisions in the draft permit violate a specifically applicable state or federal requirement.
>
> (i-3) If in accordance with Subsection (i-2) a party rebuts a presumption established under Subsection (i-1), the applicant and the executive director may present additional evidence to support the draft permit.[22]

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[20] Tex. Water Code §§ 5.551(a), .557; *see* Tex. Health & Safety Code § 382.056(n) (requiring TCEQ to follow the procedures in Sections 5.556 and 5.557 of the Texas Water Code when considering a request for a public hearing for a permit under the Texas Clean Air Act).

[21] Acts 2015, 84th Leg., R.S., ch. 116 (S.B. 709), §§ 1 and 5, eff. Sept. 1, 2015. The demonstration described in Texas Government Code § 2003.047(i-1) will be referred to as the Prima Facie Demonstration.

[22] *Accord* 30 Tex. Admin. Code § 80.17(c) (Burden of Proof).

Although this law creates a presumption, sets up a method for rebutting that presumption, and shifts the burden of production on that rebuttal, it does not change the underlying burden of proof. Accordingly, the burden of proof remains with Applicant to establish by a preponderance of the evidence that the Application would not violate applicable state and federal requirements and that a permit, if issued consistent with the Draft Permit, would protect human health and safety, the environment, and physical property.[23]

The Prima Facie Demonstration evidence in this case (including the Application, Draft Permit, and materials listed in Texas Government Code section 2003.047(i-1)) were admitted at the preliminary hearing.[24]

B. TEXAS CLEAN AIR ACT

The Environmental Protection Agency (EPA) sets primary and secondary National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants—SO_2, ozone, nitrogen dioxide (a type of NO_x), CO, lead, and PM—and determines whether areas are meeting those standards (attainment areas) or not meeting standards (nonattainment areas).[25] Major stationary sources of air pollution and major modifications to major stationary sources are required by the federal Clean Air Act (CAA) to obtain a permit before commencing construction. This process is called New Source Review (NSR) and is required whether the major source or

[23] 30 Tex. Admin. Code § 80.17(a), (c).

[24] Valero Ex. A-E (Administrative Record).

[25] 42 U.S.C. §§ 7407-09; 40 C.F.R. ch. I, subch. C, pt. 50.

modification is planned for an area where the NAAQS are exceeded (nonattainment areas) or are acceptable (attainment and unclassified areas). Permits for sources in attainment or unclassified areas are referred to as PSD permits.[26] Because Nueces County, where Applicant's Facility is located, is in an attainment/unclassifiable area, the Application was subject to a PSD review.[27]

TCEQ is authorized to administer the federal nonattainment and PSD permitting programs and has adopted rules to implement those programs. The Commission may not issue a permit to any new major stationary source if ambient air impact from the proposed source would cause or contribute to a violation of any NAAQS.[28] In modeling whether a facility will comply with NAAQS and PSD increments, applicants are required to use emissions that represent the potential to emit or "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design."[29]

The Texas Clean Air Act (TCAA)[30] authorizes the Commission to issue a permit to modify an existing facility that may emit air contaminants.[31] The TCAA defines a facility as a "discrete or identifiable structure, device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances

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[26] 42 U.S.C. § 7475(a)(4).

[27] ED Ex. ED-1 (Hill Direct) at 16.

[28] 30 Tex. Admin. Code § 116.161.

[29] 40 C.F.R. § 51.166(b)(4).

[30] Tex. Health & Safety Code ch. 382.

[31] Tex. Health & Safety Code § 382.051(a)(1).

other than emission control equipment."[32] Under the TCAA, TCEQ shall grant a permit to construct a facility if it finds:

> (1) the proposed facility for which a permit…is sought will use at least the [BACT], considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility; and
>
> (2) no indication that the emissions from the facility will contravene the intent of [TCAA], including protection of the public's health and physical property.[33]

If these requirements are not met, then the Commission may not grant the permit.[34]

Under TCEQ's rules—particularly 30 Texas Administrative Code section 116.111—an applicant for an air quality permit must include in its application information demonstrating that emissions from the facility will meet the requirements for BACT,[35] with consideration given to the technical practicability and economic reasonableness of reducing or eliminating the emissions from the facility.[36]

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[32] Tex. Health & Safety Code § 382.003(6); *see also* 30 Tex. Admin. Code § 116.10(4).

[33] Tex. Health & Safety Code § 382.0518(b).

[34] Tex. Health & Safety Code § 382.0518(d).

[35] 30 Tex. Admin. Code § 116.111(a)(2)(C).

[36] Tex. Health & Safety Code § 382.0518(b)(1).

IV. DISCUSSION

A. DIRECT REFERRAL

Because the Application was a direct referral under Texas Water Code 5.557 and 30 Texas Administrative Code section 55.210, there were no specific issues identified. Instead, the matter is referred to SOAH to determine whether the Application complies with all applicable statutory and regulatory requirements.[37] As indicated above, the Commission is required under the TCAA to issue a permit if the application demonstrates: (1) the proposed facility will use at least BACT, taking into account technical probability and financial reasonableness; and (2) no indication that the proposed facility's emissions will contravene the intent of the TCAA, including protection of the public's health and physical property.[38]

TCEQ witness Cara Hill serves as a Technical Specialist in the Expedited Team of the Air Permits Division, and she conducted the technical review of Valero's Application.[39] After her review, Ms. Hill determined, among other things, that: (1) the Application was technically complete, accurate, and complied with all applicable rules and regulations; (2) Valero complied with all public notice requirements; (3) all potential emission sources were represented and the proposed emission calculations included current control factors and accepted emission factors; (4) Valero's proposed modification meets the definition of "major

[37] 30 Tex. Admin. Code § 55.210(b).

[38] Tex. Health & Safety Code § 382.0518(b).

[39] ED Ex. ED-1 (Hill Direct) at 10.

stationary source" and is subject to PSD review; (5) BACT was established for all emissions resulting from the proposed applicable facilities; and (6) BACT controls are reflected in the Draft Permit's Special Conditions.[40]

TCEQ witness Mr. Cherry serves as an Engineer V on the Air Dispersion Modeling Team, and he audited Valero's air dispersion modeling for the Facility, as included in the Application.[41] Mr. Cherry determined, among other things, that: (1) the modeling Valero used to develop its Air Quality Analysis (AQA or air modeling) was acceptable; (2) the proposed emissions from Valero's applicable proposed facilities are not expected to cause or contribute to an exceedance of the NAAQS; (3) the predicted concentrations for SO_2, H_2S, and sulfuric acid (H_2SO_4) are below the state property line standards; and (4) the anticipated air quality levels resulting from the applicable facilities are protective of the general public's health and welfare.[42]

Based on these findings, the ED determined the Application complied with all applicable statutory and regulatory requirements; demonstrated the Facility will use BACT for its emissions; and showed no indication that the Facility's proposed emissions would contravene the intent of the TCAA, including protection of the public's health and physical property. Accordingly, the ED recommended the Draft

[40] ED Ex. ED-1 (Hill Direct) at 16, 19-21, 25-26.

[41] ED Ex. ED-15 (Cherry Direct) at 1091, 1095.

[42] ED Ex. ED-15 (Cherry Direct) at 1098, 1108-09.

Permit be issued, in accordance with Texas Health & Safety Code section 382.0518(b).[43]

B. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

BACT is an emission limitation based on the maximum degree of reduction of a pollutant emitted from a facility which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for the facility through application of production processes and available methods, systems, and techniques.[44] BACT is technology-forcing and technology-driving, and BACT determinations made over time should tend to be more stringent.[45]

Before issuing a permit for a facility, the TCAA requires the Commission to find that the facility "will use at least [BACT], considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility[.]"[46] The Commission defines BACT as:

> An air pollution control method for a new or modified facility that through experience and research, has proven to be operational, obtainable, and capable of reducing or eliminating emissions from the facility, and is considered technically practical and economically reasonable for the facility. The emissions reduction can be achieved through technology such as the use of add-on control equipment or by

[43] ED Ex. ED-15 (Cherry Direct) at 1098, 1108.

[44] CFEJ Ex. 1 (NSR Manual) at B.1; *see also* 30 Tex. Admin. Code § 116.160 (incorporating by reference 40 C.F.R. § 52.21(b)(12)).

[45] CFEJ Ex. A (Sahu Direct) at 23; CFEJ Ex. 6 (Background Statement on EPA's Top-Down Policy) at 421.

[46] Tex. Health & Safety Code § 382.0518(b)(1).

> enforceable changes in production processes, systems, methods, or work practice.[47]

EPA uses a "top down" approach, whereas TCEQ applies a "three tier" approach in performing BACT analysis, but both methods should reach the same conclusion.[48] EPA's top-down method requires an applicant to review all technologies that can reduce emissions from the proposed source, rank them in order of cost effectiveness, and then use the most stringent technology that is technically practical and economically reasonable.[49]

1. TCEQ's Tiered Approach

TCEQ uses a tiered approach in making its BACT analysis.[50] In the analysis for each tier, BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness.[51] TCEQ's Air Permit Reviewer Reference Guide (APDG 6110) provides guidance and instruction for preparing and evaluating BACT proposals submitted in NSR air permit applications.[52] It provides a step-by-step process for BACT analysis under both the three-tiered and top-down methods, and includes a checklist for the TCEQ permit reviewer's use.[53]

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[47] 30 Tex. Admin. Code § 116.10(1).

[48] ED Ex. ED-1 (Hill Direct) at 19; ED Ex. ED-4 (APDG 6110) at 96.

[49] ED Ex. ED-4 (APDG 6110) at 96.

[50] ED Ex. ED-1 (Hill Direct) at 18.

[51] ED Ex. ED-1 (Hill Direct) at 18.

[52] ED Ex. ED-1 (Hill Direct) at 18.

[53] ED Ex. ED-4 (APDG 6110) at 96-98.

TCEQ begins at Tier I and proceeds to the second and third tiers only if necessary, based on APDG 6110. In Tier I, the first step is to review the proposed emissions reduction options.[54] In this step, the applicant "should first identify and discuss the emissions reduction option(s) chosen."[55] Options include pollution prevention, equipment specification and monitoring, add-on abatement equipment (such as flares and oxidizers) and incorporating good engineering practices and best management practices.[56]

The second step of a Tier I review is to review the proposed BACT performance elements. A permit review "must evaluate" the following five performance elements for any proposed emission reduction option(s): capture efficiency, emission reduction efficiency or resulting emission level, reliability, on-stream time, and enforceability.[57] In considering emission reduction efficiency, APDG 6110 instructs the permit reviewer to "ensure that the proposed emission reduction efficiency or resulting emission level is consistent with what has been accepted as BACT in recent permit reviews and what would be expected from a properly designed and operating system."[58]

[54] ED Ex. ED-4 (APDG 6110) at 98.

[55] ED Ex. ED-4 (APDG 6110) at 98.

[56] ED Ex. ED-4 (APDG 6110) at 98-99.

[57] ED Ex. ED-4 (APDG 6110) at 99-101.

[58] ED Ex. ED-4 (APDG 6110) at 99.

The third step is to "[c]omplete a Tier I analysis for the BACT proposal."[59] Taking into account the five performance elements, the performance of the proposed BACT "must be compared to the emission reduction performance levels that have been previously accepted as BACT in recent reviews for the same industry."[60] APDG 6110 cautions that BACT proposals are "approved on a case-by-case basis" and the overall emission reduction performance should be "at least equivalent to those previously accepted as BACT" in recent permit reviews.[61]

If BACT requirements have not already been established for a particular process or industry, or if there are compelling technical differences between the applicant facility's process and others in the same industry, the evaluation of the BACT proposed will proceed into Tier II.[62] The Tier II analysis involves consideration of controls that have been accepted as BACT in recent permit reviews for similar air emission streams in a different process or industry type.[63] This tier of BACT evaluation therefore involves the consideration of an emission reduction option(s) already in use in another industry type.[64] As with Tier I evaluations, the economic reasonableness of a particular emission reduction option should already be established by prior permit reviews.[65] However, in-depth technical analysis, such as

[59] ED Ex. ED-4 (APDG 6110) at 101.

[60] ED Ex. ED-4 (APDG 6110) at 101.

[61] ED Ex. ED-4 (APDG 6110) at 101.

[62] ED Ex. ED-4 (APDG 6110) at 97.

[63] ED Ex. ED-4 (APDG 6110) at 97.

[64] ED Ex. ED-4 (APDG 6110) at 97.

[65] ED Ex. ED-4 (APDG 6110) at 97.

emission stream comparisons, may be required to determine the technical practicability of an emission reduction option that is normally used in a different process or industry type.[66]

A Tier III analysis will occur only if the first two tiers of evaluation have failed to identify an emission reduction option that is technically practicable and economically reasonable.[67] A Tier III BACT evaluation involves a detailed technical and quantitative economic analysis of all emission reduction options available for the process/industry under review.[68] While technical practicability is established through the demonstrated success of an emission reduction option based on previous use and/or an engineering evaluation of a new technology, economic reasonableness is determined by the cost-effectiveness of controlling emissions (expressed as dollars per ton of pollutant reduced) and does not consider the effect of emission reduction costs on corporate economics.[69] A Tier III evaluation is rarely necessary because technical practicability and economic reasonableness have usually been firmly established by industry practice as identified in the first two tiers.[70]

To complete a Tier III evaluation, the applicant must provide a detailed technical and economic analysis, which should accomplish the following tasks:

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[66] ED Ex. ED-4 (APDG 6110) at 97.

[67] ED Ex. ED-4 (APDG 6110) at 97.

[68] ED Ex. ED-4 (APDG 6110) at 97.

[69] ED Ex. ED-4 (APDG 6110) at 97.

[70] ED Ex. ED-4 (APDG 6110) at 97.

- Identify all emission reduction options.
    - This includes prevention, add-on abatement equipment, or new and emerging innovative technologies.[71]
- Eliminate technically infeasible options.
    - To eliminate a technology, the applicant "must clearly demonstrate that, based on physical, chemical and/or engineering principles, the technical difficulties will preclude its successful use."[72]
- Rank remaining emission reduction options in terms of total emissions reduced.
- Perform quantitative cost analysis to determine the cost-effectiveness (dollars per ton of pollutant reduced) of each emission reduction option.
- Select BACT based on cost-effectiveness and performance.[73]

The permit reviewer is advised to "keep in mind that BACT for any particular industry is not static and is subject to change over time."[74] The review should "try to identify any technological developments which have led to new emission reduction options that may not have been considered in past permit reviews for the same industry."[75] The reviewer's failure "to consider all potentially applicable control alternative constitutes an incomplete BACT analysis."[76] If no such options

[71] ED Ex. ED-4 (APDG 6110) at 129.

[72] ED Ex. ED-4 (APDG 6110) at 130. Also, no technology can be eliminated because of expense at this step.

[73] ED Ex. ED-4 (APDG 6110) at 103.

[74] ED Ex. ED-4 (APDG 6110) at 101.

[75] ED Ex. ED-4 (APDG 6110) at 101.

[76] ED Ex. ED-4 (APDG 6110) at 96.

are identified and the overall emission reduction performance of the proposed BACT is "at least equivalent to what has been accepted in recent permit reviews for the same industry, the BACT proposal should be accepted as satisfying BACT requirements."[77]

2. Cost Effectiveness

The NSR Manual describes two methods of cost effectiveness analysis: average cost effectiveness and incremental cost effectiveness.[78] Average cost effectiveness is the total annualized costs of control divided by the annual emission reductions (the difference between the baseline emission rate and the controlled emission rate).[79] The baseline emission rate represents the realistic upper boundary of uncontrolled emissions for the source.[80] The application of controls are not to be considered in calculating baseline emissions.[81] However, "[w]hen calculating the cost effectiveness of adding post-process emissions controls to certain inherently lower polluting processes, baseline emissions may be assumed to be the emissions from the lower polluting process itself."[82] The NSR Manual also cautions that a control technology that is eliminated from consideration for adverse economic

[77] ED Ex. ED-4 (APDG 6110) at 101.

[78] CFEJ Ex. 1 (NSR Manual) at B.36.

[79] CFEJ Ex. 1 (NSR Manual) at B.36.

[80] CFEJ Ex. 1 (NSR Manual) at B.37.

[81] CFEJ Ex. 1 (NSR Manual) at B.37.

[82] CFEJ Ex. 1 (NSR Manual) at B.37.

impacts at its highest level of performance may be acceptable at a lower level of performance.[83]

An incremental cost effectiveness calculation compares the costs and emissions performance level of a control option to those of the next most stringent option.[84] "The incremental cost effectiveness should be examined in combination with the total cost effectiveness in order to justify elimination of a control option."[85]

When evaluating the total or incremental cost effectiveness of a control alternative, an applicant should ensure the assumptions made are "reasonable and supportable," to avoid inflating the cost-effectiveness figures.[86] As an example, the capital cost of a control option may appear high when presented by itself or as a percentage of the total project cost, but this information can be misleading.[87] If a large emissions reduction is projected, low or reasonable cost effectiveness numbers may validate the option as an appropriate BACT alternative irrespective of the apparent high capital costs.[88] Thus, "undue focus on incremental cost effectiveness can give the impression that the cost of a control alternative is unreasonably high,

[83] CFEJ Ex. 1 (NSR Manual) at B.24.

[84] CFEJ Ex. 1 (NSR Manual) at B.41.

[85] CFEJ Ex. 1 (NSR Manual) at B.41.

[86] CFEJ Ex. 1 (NSR Manual) at B.44.

[87] CFEJ Ex. 1 (NSR Manual) at B.45.

[88] CFEJ Ex. 1 (NSR Manual) at B.45.

when in fact, the total cost effectiveness, in terms of dollars per total ton removed, is well within the normal range of acceptable BACT costs."[89]

To justify elimination of a control technology as economically unreasonable, the applicant should demonstrate that the costs of pollutant removal for the control technology are disproportionately high when compared to the cost of control for the pollutant in recent BACT determinations.[90] "Specifically, the applicant should document that the cost to the applicant of the control alternative is significantly beyond the range of recent costs normally associated with BACT for the type of facility (or BACT control costs in general) for the pollutant."[91]

Here Valero used TCEQ's three-tier process to establish BACT for its proposed new facilities and modifications to its facilities, including the boiler, HOC Unit, a cooling tower, equipment fugitives, a process vent, wastewater collection, carbon adsorption system, flares, and maintenance, startup, and shutdown.[92]

For PM emissions from the HOC, Valero determined that a Tier I BACT analysis was appropriate and proposed a PM emission limit of 1 pound (lb)/1000 lbs of carbonaceous hydrocarbons, or coke, burned is appropriate.[93]

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[89] CFEJ Ex. 1 (NSR Manual) at B.45-.46.

[90] CFEJ Ex. 2 (APDG 6110) at 376.

[91] CFEJ Ex. 1 (NSR Manual) at B.45.

[92] ED Ex. ED-1 (Hill Direct) at 19.

[93] Valero Ex. D (Administrative Record) at 80.

For NO_x emissions from the HOC, Valero determined that Tier I was not appropriate and conducted a Tier II and Tier III BACT analysis.[94] After its BACT analysis, Valero proposed a NO_x emissions rate of 37 ppm[95] from the HOC to be achieved with "operational practices" that include combustion promoters and control of excess oxygen levels.[96] CFEJ and OPIC contend that the Draft Permit does not properly evaluate low temperature oxidation (LoTOx)[97] or selective catalytic reduction (SCR)[98] technologies as controls for NO_x emissions and that an emissions limit of 37 ppm for NO_x is not BACT.

The ED and Valero argue the Draft Permit satisfies BACT for all emissions. The following section addresses BACT for particulate matter and NO_x from the HOC.

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[94] ED Ex. ED-1 (Hill Direct) at 19.

[95] The current NO_x permit limit for the HOC is 37 ppm and was the result of Valero's system-wide consent decree. *See* Valero Ex. D (Administrative Record) at 59.

[96] CFEJ Ex. A (Sahu Direct) at 39.

[97] LoTOx uses ozone to oxidize NO_x emissions to more soluble oxidizes that can be removed with scrubbers. *See* ED Ex. ED-1 (Hill Direct) at 24.

[98] SCR is a control technology that reduces NO_x emissions by reacting NO_x and ammonia to produce nitrogen and water.

3. Whether the controls proposed in the Draft Permit constitute BACT for PM emissions

a) PM Emissions from the HOC and the Proposed Limit

The HOC's cracking process involves the deposition of coke onto a catalyst. A catalyst regenerator then burns coke from the catalyst to reactivate it. The burning of coke generates PM, among other emissions.[99] The emissions limitation is therefore expressed as pounds of PM per pounds of coke burned off. Valero proposed a PM limitation of 1lb/1000 lbs of coke burn. PM emissions from Valero's HOC are controlled using the Belco Scrubber, a wet gas scrubber.[100]

b) CFEJ's Position

CFEJ argues that Valero's BACT analysis for PM emissions was deficient for several reasons such that the Application and Draft Permit fail to comply with the requirements of the CAA.[101] Therefore, CFEJ maintains the Application should be denied.[102]

First, CFEJ contends that because Valero admitted that further reductions of PM beyond the proposed 1 lb/1000 lb coke burn are possible, Valero should have

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[99] Valero Ex. D (Administrative Record) at 15-16.

[100] Valero Ex. D (Administrative Record) at 80.

[101] CFEJ Initial Br. at 17-18.

[102] CFEJ Initial Br. at 32.

performed an economic analysis to justify whether further reductions would be economically reasonable.[103] CFEJ relies on testimony by Valero's Environmental Superintendent Meaghan Marquard:[104]

> Q. So it would be possible for Valero to reduce PM emissions; is that correct?
>
> A. It's my understanding that, if we wanted to reduce PM emissions any further, we'd have to completely rebuild or replace the BelCo scrubber. So the cost effectiveness of that would not be favorable.
>
> Q. But you could, by rebuilding or replacing the BelCo scrubber, reduce PM emissions?
>
> A. It's possible.
>
> Q. And you said that the – that's not cost effective. Is there any – can you point me to any information in the record about the cost effectiveness of – of rebuilding the BelCo scrubber to reduce PM emissions?
>
> A. No, sir.

Despite Ms. Marquard's testimony about the cost effectiveness of rebuilding the scrubber, the record contains no estimate of what the cost would be and no economic analysis for doing so.

Second, CFEJ argues that other crackers have established lower PM limits than Valero's proposed limit that are BACT. Therefore, Valero should have performed both an analysis of any compelling technical differences between its

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[103] CFEJ Initial Br. at 13-14.

[104] Tr. at 138-39, 159.

cracker's process and the others and an economic reasonableness analysis to justify its higher limit.[105] CFEJ specifically points to the 0.82 lb/1000 lb coke burn PM limit[106] for the cracker at Total's Port Arthur, Texas (Total) refinery and argues that Valero's limit cannot be greater than 0.82 lb/1000 lb coke burn absent a technical and/or economic analysis. CFEJ notes that ED witness Cara Hill testified to differences in the feedstock of the Total cracker and Valero cracker, but ultimately concluded that such differences would not affect the ability of a wet gas scrubber to control PM.[107] Regardless of any differences in feedstock, the record contains no analysis of the differences and what affect, if any, they may have on PM emissions.

Finally, CFEJ argues that Valero should not have relied on TCEQ's 2011 FCCU Guidelines in performing its BACT analysis for PM emissions but should have performed a case-by-case analysis instead.[108]

c) Other Parties' Positions

Applicant, the ED, and OPIC all argue that the Applicant met its burden to show that the proposed limit for PM emissions from the HOC, 1 lb/1000 lbs coke burn, constitutes BACT under a Tier I analysis.[109] These parties agree that the

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[105] CFEJ Ex. A (Sahu Direct) at 31, 38-39; CFEJ Initial Br. at 14-16. The ALJs note that although Dr. Sahu's Direct Testimony listed several refineries' PM limits, several corrections were made during the hearing in which certain limits were increased or distinguished. *See, e.g.*, Tr. at 79-81, 92. Because CFEJ only referred to the Total facility's cracker and its PM limit in its briefing, the ALJs will limit their discussion of competing PM limits to the Total refinery in this PFD when analyzing CFEJ's arguments.

[106] CFEJ Ex. 12 at 857.

[107] CFEJ Initial Br. at 15-16; Tr. At 245.

[108] CFEJ Initial Br. at 16-17.

[109] Applicant Initial Br. at 16; ED Initial Br. at 12-13; OPIC Initial Br. at 5-10.

proposed limit is consistent with recently permitted limits and that the limits CFEJ referenced are distinguishable.

d) ALJs' Analysis

The ALJs conclude that Applicant met its burden to show that the proposed limit for PM emissions constitutes BACT. The TCEQ's Chemical NSR Permits Section has determined that an emissions limit for PM of 1 lb/1000 lbs coke burn constitutes BACT for FCCUs such as Valero's HOC.[110] The same limit is also specified in EPA's rules for New Source Performance Standards for modified or reconstructed FCCUs.[111] That limit (or a higher limit) also appears to be applicable to a number of FCCUs as presented in the record.

The ALJs note that for two of the refineries listed in both the Application and in Dr. Sahu's original direct testimony as having purportedly lower limits, the values were clarified at and updated during the hearing.[112] Namely, both documents specify a limit of 0.67 lb/1000 lb coke burn (without clarifying whether the limits are total or filterable) for PM at the Phillips 66 Sweeny Refinery, but the limit was corrected to 1.334 lbs/1000 lb coke burn at the hearing.[113] For the Lion Oil El Dorado Refinery,

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[110] Valero Ex. 205 (Tier I BACT Guidelines); *see* also https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/bact/bact-chemical.xlsx at row 29 (accessed Nov. 13, 2023).

[111] 40 C.F.R. § 60.102a(b)(1)(i).

[112] Valero Ex. D (Administrative Record) at 57; CFEJ Ex. A (Sahu Direct) at 31, *as modified by* Tr. at 79-81; 92.

[113] Valero Ex. D (Administrative Record) at 57; CFEJ Ex. A (Sahu Direct) at 31, *as modified by* Tr. at 92. The ALJs note that the same mistakes Applicant cross-examined Dr. Sahu about at the hearing were present in Applicant's own chart in its Application, were not corrected on the record for that exhibit, did not specify whether or not the limit was for "total" PM, and the text of the Application did not explain why certain values from the chart were or were not "apples to apples" comparisons with Valero's proposed limit.

both documents list the PM limit as 0.5 lb/1000 lbs coke burn; however, the limit was clarified to be 1 lb/1000 lb coke burn during the hearing.[114]

As noted in CFEJ's briefing, the PM limit for a third facility, Total, is 0.82 lb/1000 lbs coke burn.[115] CFEJ argues that Valero must meet this lower limit, which it argues is BACT. The ALJs disagree for several reasons. TCEQ's Air Permit Review Reference Guide notes in several places that that different limits may be permitted:

> **Proposals beyond BACT:** An applicant may propose control(s) that are beyond accepted BACT (i.e., resulting in emission reductions that are higher than accepted BACT).[116]
>
> * * *
>
> …There will be some situations where one or more of the proposed levels of performance vary (higher or lower) from those previously proposed and accepted as BACT. … While a specific BACT proposal may be different than those accepted as BACT in recent permit reviews, the proposal must have an overall emission reduction performance that is at least equivalent to those previously accepted as BACT.[117]

The record indicates that Total's limit was a "beyond BACT" proposal. Total was willing to accept a lower limit to avoid both state permitting and PSD review and thereby assumed the risk of having a narrower compliance margin than

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[114] Valero Ex. D (Administrative Record) at 57; CFEJ Ex. A (Sahu Direct) at 31, *as modified by* Tr. at 79-81.

[115] Valero Ex. D (Administrative Record) at 57; CFEJ Initial Br. at 14.

[116] CFEJ Ex. 2 (APDG 6110) at 343.

[117] CFEJ Ex. 2 (APDG 6110) at 346.

other facilities.[118] The permit file for the Total facility indicated that TCEQ viewed Tier I BACT as 1 lb/1000 lbs coke burn at the time the permit was issued.[119]

Dr. Sahu testified as to another situation in which a limit could be permitted but may not have undergone an actual BACT determination. He noted that limits resulting from consent decree negotiations typically don't take cost effectiveness into account and that consent decree negotiations are not a replacement for a full BACT analysis.[120] Yet, limits resulting from consent decree negotiations are permitted by agencies throughout the country.

The ALJs also note Valero's argument that Total's PM limit of 0.82 lb/1000 lbs coke burn is not required to include H_2SO_4 mist, which is a subset of total PM.[121] Total's permit gives them the option of testing for PM using either EPA reference method 5 or 5B "as appropriate."[122] Although method 5B is a method for testing "Nonsulfuric Acid Particulate Matter," and the permit contains separate testing for H_2SO_4, the permit does not specify when either method for testing PM would be "appropriate." If Total has the option to use either method, therefore, it is not clear to the ALJs that the 0.82 lb/1000 lbs coke burn would necessarily include or exclude the H_2SO_4 portion of PM being emitted from its FCCU. Therefore, the ALJs give this argument no weight.

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[118] Valero Ex. 200 (Lovegren Direct) at 38.

[119] Valero Ex. 200 (Lovegren Direct) at 38.

[120] Tr. at 84-85.

[121] Applicant Initial Br. at 21-22.

[122] Valero Ex. 223 (Total Port Arthur Refinery Permit) at 11229.

The ALJs conclude that the existence of a lower permitted limit does not alone make that limit BACT. With respect to the PM limit in Total's permit specifically, the ALJs conclude that it is inappropriate to recommend that an applicant meet a limit that: (1) was not the product of a BACT analysis, and (2) was a "beyond BACT" proposal meant to avoid PSD/state permitting review.

The ALJs do not agree with CFEJ's contention that because a Valero witness testified that it was "possible" to achieve lower a PM limit by re-building the HOC's wet scrubber, Valero must have conducted an economic analysis of the cost to do so in order to satisfy BACT.[123] The witness seemed unsure about the likelihood of any emissions reductions and there was no evidence that rebuilding the scrubber would actually result in reductions. In addition, Valero witness Jesse Lovegren, Ph.D., P.E. testified that Lion Oil was required to install a new wet gas scrubber as part of a consent decree settlement, but the total PM limit for that FCCU is also 1 lb/1000 lbs coke burn (including both filterable and condensable PM).[124] The ALJs conclude that more evidence of proof of emissions reductions beyond mere speculation is needed to require a full economic analysis of rebuilding the HOC's scrubber.

Finally, the ALJs are not persuaded by CFEJ's argument that Valero should not have relied on TCEQ's FCCU guidelines solely because the guidelines were published 12 years ago. CFEJ identified no new control method that could be used

[123] CFEJ Initial Br. at 13-14.

[124] Applicant Exhibit 200 (Lovegren Direct) at 45.

to more effectively control PM emissions than the wet scrubber already used by Valero. Additionally, CFEJ could point to no other facility that underwent a BACT analysis to determine its emission limit that has been able to consistently achieve a lower limit. Therefore, the record contains no evidence of technically feasible controls/emissions limitations that would point to an advancement requiring further analysis under TCEQ's three-tier BACT analysis approach.

For all the above reasons, the ALJs conclude that Valero proved, by a preponderance of the evidence, that it's proposed PM emission limitation of 1 lb/1000 lbs coke burn constitutes BACT for controlling PM emissions from its HOC.

4. Whether the controls proposed in the Draft Permit constitute BACT for NO_x emissions

a) CFEJ's Position

CFEJ asserts two arguments against Valero's BACT determination for NO_x emissions: (1) that Valero's cost analysis is based on unreasonable assumptions that underestimate the actual pollution control capabilities of LoTOx; and (2) that Valero improperly eliminated SCR by inflating its cost.

(i) Valero's cost analysis for LoTOx is based on unreasonable assumptions

CFEJ argues that Valero failed to demonstrate the effectiveness of either LoTOx or SCR and instead underestimated their capabilities and inflated their costs.

In its rebuttal case, CFEJ referred to the EPA's NSR Manual to show that an applicant must consider the most effective level of control when performing a BACT analysis and that the source can achieve the same emissions reduction level as another source unless the applicant can demonstrate the need for a justification through source-specific factors.[125] Additionally, CFEJ highlights the manual's warning that "[a]n unrealistically low assessment of the emission reduction potential of a certain technology could result in inflated cost effectiveness figures."[126]

CFEJ's expert witness, Dr. Sahu, testified that, in his opinion, Valero's BACT for NO_x is deficient and TCEQ's resulting determination is unsupported.[127] He opined that Valero failed to consider LoTOx's demonstrated ability to control cracker NO_x emissions to as low as 8 ppm, and Valero failed to provide any cost analysis for SCR or consider its ability to control cracker NO_x emissions to below 2 ppm.[128] Dr. Sahu testified that Valero's proposed emission limit will result in two to over ten times as much pollution as comparable refineries without adequate justification.[129] He explained that Valero's cost analysis is based on faulty assumptions that underestimate the actual pollution control capabilities of LoTOx.[130] He testified that Valero calculated the cost of LoTOx using a NO_x outlet

[125] CFEJ Ex. 1 (NSR Manual) at B.23-.24.

[126] CFEJ Ex. 1 (NSR Manual) at B.44.

[127] CFEJ Ex. A (Sahu Direct) at 9.

[128] CFEJ Ex. A (Sahu Direct) at 9.

[129] CFEJ Ex. A (Sahu Direct) at 39.

[130] CFEJ Ex. A (Sahu Direct) at 40.

concentration of 20 ppm even though a NO_x outlet concentration of 8-10 ppm is much more accurate.[131] Dr. Sahu explained that the outlet concentration, the PM content of gases exhausted from control equipment, has a large effect on the outcome of the cost analysis, and by using a NO_x outlet concentration of 20 ppm, which underestimates the control effectiveness of LoTOx, Valero is able to make LoTOx appear much more expensive.

Dr. Sahu referred to the RECLAIM report, a study conducted by South Coast Air Quality Management District (SCAQMD),[132] and cited by Valero in its Application, to show that LoTOx is capable of achieving NO_x outlet concentrations of 8 to 10 ppm from a refinery cracker:[133]

[131] CFEJ Ex. A (Sahu Direct) at 41.

[132] Valero Ex. D (Administrative Record) at 61.

[133] CFEJ Ex. 14 (RECLAIM Report) at 0931-32.

No	Application	Capacity (bpsd)	NOx Inlet (ppmv)	NOx Outlet (ppmv)	% Control	Startup Date
1	FCCU, Arkansas	20,000	70-100	10	86%	2007
2	FCCU, Texas City, TX	130,000	100-200	10	95%	2007
3	FCCU, Texas City, TX, retrofit	60,000	100-150	8	95%	2007
4	FCCU, Texas City, TX, retrofit	52,000	70-100	10	90%	2007
5	FCCU, Houston, TX, retrofit	58,000	100-150	10	93%	2007
7	FCCU, St. Charles, LA, retrofit	100,000				2010
8	FCCU, Corpus Christi, TX, retrofit	45,000		Confidential		2010
9	FCCU, Delaware, DE, retrofit	75,000				TBD
10	FCCU, El Dorado, KS	40,000	150	20	86%	TBD
11	FCCU, Ardmore, Oklahoma	40,000				TBD
12	FCCU, Three Rivers, Texas	28,000		TBD		TBD
13	FCCU, Placid Refining, LA	30,000				TBD

Note: Refer to Reference 20 for additional installations inside and outside of the U.S. Some scrubbers have built in ready for LoTOx retrofit but ozone generators have not yet been installed as of May 2013.

CFEJ stressed that it is critical to consider these lower limits because identifying limits and control options at similar plants is central to a proper BACT analysis. They argue that the NSR Manual, which TCEQ uses as guidance for the three-tier process, explains that in determining BACT, it is presumed that the source can achieve the same emission reduction level as another source unless the applicant demonstrates that there are source-specific factors or other relevant information that provide a technical, economic, energy or environmental justification to do otherwise.[134]

Dr. Sahu testified that Valero derived the 20 ppm limit from enforcement actions initiated by the EPA.[135] He noted that limits obtained from enforcement

[134] CFEJ Ex. 1 (NSR Manual) at B.24.

[135] CFEJ Ex. A (Sahu Direct) at 41.

actions are designed to achieve maximum system-wide reductions of NO_x emissions from all crackers owned by each company—rather than from a case-by-case BACT analysis.[136]

To illustrate the real-world impacts between the NO_x emissions limits, Dr. Sahu compared the different control technologies:[137]

Proposed NO_x Limits	Emissions (tons/year)
Valero's Proposed NO_x Limit of 37 ppm	473.81
Valero's LoTOx limit of 20 ppm	256
LoTOx limit of 8 ppm	102

Dr. Sahu testified that it would not be difficult for Valero to install LoTOx because Valero already uses the Belco wet scrubbing system which can be easily configured to incorporate a LoTOx process[138]—Valero would need to only add the ozone spray nozzles to make the NO_x compounds soluble.[139]

[136] CFEJ Ex. A (Sahu Direct) at 41-42.

[137] CFEJ Ex. A (Sahu Direct) at 48.

[138] Valero Application, Ex. 19 at 39, 45.

[139] CFEJ Ex. A (Sahu Direct) at 49.

(ii) Valero improperly eliminated SCR by inflating its cost

In its Application, Valero represented that because capital costs for SCR are similar to LoTOx and that better data was available for LoTOx costs on full burn units, it was not necessary to conduct an SCR cost analysis.[140] In the Application, Valero did not represent that SCR was technically infeasible.

Dr. Sahu testified that Valero did not complete the BACT analysis for SCR and did not provide the detailed technical or economic justification for eliminating SCR.[141] Dr. Sahu disagreed with Valero's statement that SCR is "dispreferred" on full-burn crackers.[142] Dr. Sahu identified the Coffeyville Refinery as a refinery that uses SCR to control NO_x on full-burn crackers, and he relied on a 2009 study performed by Shell Global Solutions which shows that SCR can operate successfully on full-burn crackers.[143] In addition, Dr. Sahu testified that SCR can achieve a NO_x outlet concentration from crackers of 2 ppm as evidenced by a refinery which has been in operation since 2003 and was included in the SCAQMD study.[144]

Dr. Sahu discussed the two technical issues raised by Valero concerning the use of SCR: 1) reliability issues with catalyst plugging and fouling when dealing with

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[140] ED Ex. ED-1 (Hill Direct) at 24.

[141] CFEJ Ex. A (Sahu Direct) at 50.

[142] CFEJ Ex. A (Sahu Direct) at 52.

[143] CFEJ Ex. A (Sahu Direct) at 51; CFEJ Ex. 17.

[144] CFEJ Ex. A (Sahu Direct) at 53.

emissions from an FCCU regenerator comparted to a CO boiler or heater; and 2) ammonia slip and associated secondary particulate emissions.[145] Dr. Sahu dismissed Valero's technical issues by explaining that both are relevant to the use of SCR regardless of whether they operate in full or partial burn configuration.[146] He testified that Valero did not show how reliability management on a full-burn cracker is meaningfully different than the same management on a partial-burn cracker.[147] Dr. Sahu also testified that the issue of ammonia slip is common and can be dealt with by properly designing and operating the system to maximize NO_x removal and minimize ammonia emissions or by procuring ammonia-reducing catalysts.[148]

Dr. Sahu found Valero's statements about why it chose not to conduct an economic analysis of SCR to be insufficient for a BACT analysis. He testified that Valero should have completed an economic analysis for SCR because both the EPA's NSR Manual and TCEQ's guidance instruct applicants to use EPA's Air Pollution Cost Control Manual to calculate the cost of installing SCR.[149] He also testified that Valero's statement that the costs for LoTOx are similar to SCR is unfounded—the SCAQMD study includes a large range in cost effectiveness for both technologies:[150]

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[145] CFEJ Ex. A (Sahu Direct) at 52-53.

[146] CFEJ Ex. A (Sahu Direct) at 53.

[147] CFEJ Ex. A (Sahu Direct) at 53.

[148] CFEJ Ex. A (Sahu Direct) at 53; CFEJ Ex. 14 (RECLAIM Report) at 928 (SCR can reduce 95-98% NOx emissions from FCCU and achieve 2 ppm NOx while maintaining an ammonia slip of less than 5 ppm.).

[149] CFEJ Ex. A (Sahu Direct) at 55.

[150] CFEJ Ex. A (Sahu Direct) at 55; CFEJ Ex. 14 (RECLAIM Report) at 939.

Proposed Technology	Cost Effectiveness per Ton of NO_x Removed
LoTOx	$10,631 to $29,502
SCR	$6,537 to < $49,408

b) OPIC's Position

OPIC takes the position that Valero's cost-analysis for the BACT determination for NO_x emissions was not reasonable because its reasonableness calculation was based upon an agency threshold that has not been updated to account for inflation, rising costs of labor, or materials—which were all mentioned by Valero's own witness as important factors to consider in such an analysis.[151] OPIC argues that Valero's cost-analysis took inflation into account which further widened the gap between its purported costs and the unadjusted rate of $10,000 per ton of NO_x removed used by the ED.[152]

c) Valero's Position

(i) A NO_x emissions limit of 37 ppm is BACT

Valero proposed a BACT limit for NO_x emissions from the HOC unit of 37 ppm, using a combination of operational practices.[153] Valero presented the testimony of two expert witnesses, Dr. Jesse Lovegren and Meaghan Marquard.

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[151] OPIC Br. at 13; *see also* Valero Ex. 200 (Lovegren Direct) at 50.

[152] OPIC Br. at 13.

[153] Valero Ex. D (Application) at 64-65.

Dr. Jesse Lovegren, is a professional engineer serving as a consultant with Trinity Consultants.[154] Prior to becoming a consultant, Dr. Lovegren worked for TCEQ in the Air Permit Division and processed or peer reviewed over 200 permit applications during his employment there.[155]

Meaghan Marquard is Valero's Environmental Superintendent.[156] She is a professional engineer who has worked at Valero for nine years; first as an environmental engineer, then as a process safety engineer, and now as an environmental superintendent.[157]

Dr. Lovegren testified that BACT is not technology-forcing but technology-based.[158] He testified that the lowest emission limits he identified were several limits of 20 ppm and predominantly found in consent decrees.[159] To determine the emissions reduction, Dr. Lovegren then compared the 20 ppm limit to a 'realistic' worst-case emissions rate that could occur in the absence of add-on controls—37 ppm which is the emissions rate already required by the permit.[160] He explained:

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[154] Valero Ex. 200 (Lovegren Direct) at 2.

[155] Valero Ex. 200 (Lovegren Direct) at 3.

[156] Valero Ex. 100 (Marquard Direct) at 2.

[157] Valero Ex. 100 (Marquard Direct) at 2.

[158] Valero Ex. 200 (Lovegren Direct) at 12.

[159] Valero Ex. 200 (Lovegren Direct) at 46.

[160] Valero Ex. 200 (Lovegren Direct) at 46.

> The only realistic way to ensure continuous compliance with a numerical permit limit is to design the facility around a lower emission capability, with sufficient margin to ensure that actual emissions will always remain below the permitted limit, including all real-world variations that may be reasonably encountered. A BACT limitation without compliance margins is, in my opinion, a limitation that cannot be continuously achieved. That is why we use the permit emissions limit as the point of comparison, and not the lowest emission rate that a control device can achieve.[161]

Ms. Marquard testified that Valero used the actual costs from a similar project, the 2009 retrofit installation of a comparable unit at Valero's St. Charles, Louisiana refinery, and then escalated those costs based on industry inflation to provide for a greater degree of certainty in Valero's cost-effectiveness calculation for its West Refinery.[162] Dr. Lovegren then used that data[163] and consulted the EPA-recommended cost effectiveness factor to determine a cost effectiveness value of $38,264 per ton NO_x removed, which he did not consider economically reasonable.[164] Dr. Lovegren also determined that the cost-effectiveness of controlling NO_x emissions to 10 ppm would be $24,092.68; and 8 ppm would be $22,092.68.[165] Dr. Lovegren explained that there is no "bright line" for determining TCEQ's threshold for economic reasonableness, but that the TCEQ would normally consider costs above $10,000 per ton of NO_x removed as unreasonable.[166]

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[161] Valero Ex. 200 (Lovegren Direct) at 47.

[162] Valero Ex. 100 (Marquard Direct) at 4.

[163] *See* Valero Ex. 102 (St. Charles Capital Costs Report).

[164] Valero Ex. 200 (Lovegren Direct) at 48.

[165] Valero Ex. 200 (Lovegren Direct) at 53.

[166] Valero Ex. 200 (Lovegren Direct) at 48.

Dr. Lovegren questioned Dr. Sahu's reliance on the SCAQMD report in asserting that the FCCU at the Marathon petroleum refinery in Texas City has achieved NO_x emissions as low as 8 ppm.[167] Dr. Lovegren clarified that the Marathon refinery in Texas City has a permitted NO_x emissions limit of 20 ppm.[168] Dr. Lovegren also took issue with Dr. Sahu's reliance on the SCAQMD report's "unusual cost accounting methodology.[169] Dr. Lovegren explained:

> SCAQMD's methodology effectively amortizes the capital investment equally over the life of the equipment (i.e., at zero interest), and assumes that annual operating costs will stay flat (such that future years' operating costs become cheaper in real terms).[170]

He also testified that the data relied upon by Dr. Sahu for his recommendation that Valero should use an outlet concentration of 8-10 ppm, the RECLAIM report, was inapt.[171] Dr. Lovegren explained that the RECLAIM report was prepared for purposes of setting allocation levels for a cap-and-trade program as opposed to enforceable permit limits.[172] He testified that to his knowledge, there is no FCCU with a permitted NO_x emission rate of 2 ppm.[173]

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[167] Valero Ex. 200 (Lovegren Direct) at 52.

[168] Valero Ex. 200 (Lovegren Direct) at 52.

[169] Valero Ex. 200 (Lovegren Direct) at 49.

[170] Valero Ex. 200 (Lovegren Direct) at 49.

[171] Valero Ex. 200 (Lovegren Direct) at 51.

[172] Valero Ex. 200 (Lovegren Direct) at 55.

[173] Valero Ex. 200 (Lovegren Direct) at 55.

In response to Dr. Sahu's testimony that installing LoTOx would be simple, Ms. Marquard testified that adding spray ozone spray nozzles would not be sufficient and that it would require "more work" than Dr. Sahu believes.[174]

(ii) SCR is not cost-effective and therefore is not BACT

Valero does not dispute that SCR is technically feasible. Rather, Valero contends that the use of SCR control technology is not BACT because it is not cost-effective.[175]

Ms. Marquard testified that if Valero were to install SCR to reduce NO_x emissions, the SCR reactors would need to be constructed near the Belco scrubber, which would require demolition of an existing control room (which would then need to be rebuilt at a different location).[176]

Dr. Lovegren testified that he did not include a cost-effectiveness calculation for SCR for several reasons: (1) the pollutant stream from the regenerator poses greater reliability (catalyst plugging and fouling) issues than does the stream from a CO boiler or process heater; (2) increased ammonia slip and associated sulfate

[174] Valero Ex. 100 (Marquard Direct) at 4.

[175] Valero Ex. 200 (Lovegren Direct) at 53.

[176] Valero Ex. 100 (Marquard Direct) at 5-6.

particular emissions as compared to LoTOx; and (3) LoTOx and SCR have comparable capital costs levels.[177]

Dr. Lovegren also testified that he ultimately conducted a cost-effectiveness calculation for the installation of SCR to control NO_x emissions from the HOC unit, and he determined the cost effectiveness value to be $88,660.41 per ton of NO_x removed.[178]

d) ED's Position

ED witness Cara Hill conducted the technical review of the Application,[179] which included evaluating all sources of emissions included in air quality permit applications, applying appropriate state and federal requirements, reviewing emissions calculations, drafting permit documents, completing the technical review and technical review summaries, and preparing public notice authorizations.[180] She testified that she has reviewed approximately 131 minor NSR permitting actions and 15 NSR major permitting actions.[181]

Ms. Hill testified that BACT is the "maximum degree of reduction achievable" that is "technically feasible and economically reasonable."[182] When she

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[177] Valero Ex. 200 (Lovegren Direct) at 53-54.

[178] Valero Ex. 200 (Lovegren Direct) at 54; *see also* Valero Ex. 220 (SCR Cost Estimate).

[179] Tr. at 196.

[180] ED Ex. ED-1 (Hill Direct) at 10.

[181] ED Ex. ED-1 (Hill Direct) at 12.

[182] Tr. at 215, 221.

reviewed Valero's BACT analysis, she relied on recently issued permits in Texas and other states, the RACT/BACT/LAER Clearinghouse database (a database where states will enter the results of BACT determinations for federal permits),[183] and TCEQ's Tier I BACT table.[184] She explained that BACT does not have to be the lowest possible emissions rate of available technology when the proposed site is in an attainment area.[185] Instead, she looks to what most other facilities are achieving.[186] She acknowledged that TCEQ guidance does require applicants to discuss all technological advances in their application, and that such information could include existing types of technology that is being used to achieve lower limits.[187] She testified that sometimes the ED considers whether an existing technology is capable of more stringent limits by looking at vendor guarantees or vendor information.[188]

Ms. Hill testified that economic reasonableness is determined by the cost-effectiveness of controlling emissions (expressed as dollars per ton of pollutant reduced) and does not consider the effect of emission reduction costs on corporate economics.[189] Ms. Hill explained that there is no "bright-line test or number" for economic reasonableness, but that, for at least the past eight years, TCEQ has

[183] Tr. at 234-35.

[184] Tr. at 199.

[185] Tr. at 201-02.

[186] Tr. at 202.

[187] Tr. at 225, 239.

[188] Tr. at 246.

[189] ED Ex. ED-1 (Hill Direct) at 20.

considered $10,000 per pollutant to be a threshold number.[190] She testified that she was unsure whether TCEQ's $10,000 threshold was ever adjusted for inflation.[191]

The ED concedes that if Valero were able to achieve the lower NO_x emissions using the LoTOx technology as demonstrated in the literature, then it would be considered cost effective.[192]

e) ALJs' Analysis

As stated in the TCEQ guidance document for air permit reviewers, BACT is not static and is subject to change over time.[193] BACT progresses as technology progresses, and before accepting a BACT proposal, the permit reviewer should identify any new technological developments which may have led to new emission reduction option(s).[194]

The TCEQ guidance document also provides, "technical practicability is established through demonstrated success of an emission reduction based on previous use, and/or engineering evaluation of a new technology."[195] What the TCEQ's practice appears to be is to first look at other permits involving the same

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[190] Tr. at 204, 210.

[191] Tr. at 210.

[192] ED Reply Br. at 5 ("Should Valero be able to reach those low numbers, then the LoTOx would be considered cost effective.")

[193] CFEJ Ex. 2 (APDG 6110) at 341.

[194] CFEJ Ex. 2 (APDG 6110) at 341.

[195] CFEJ Ex. 2 (APDG 6110) at 342.

process or industry to see what has been determined achievable. When appropriate, TCEQ Staff will consider new technological developments. In Tier II, Staff then looks at emission levels that may be lowered using a different process. And finally, with Tier III, Staff analyzes the technological practicality and economic reasonableness of a new emission option based on either success through actual use or an engineering evaluation.

(i) A NO_x emission limit of 37 ppm for the HOC is not BACT

The ALJs find that a NO_x emission limit of 37 ppm does not constitute BACT for the HOC.[196] An emission limit of 37 ppm is a significantly higher pollution limit for NO_x from the FCCU when compared to what other refineries have achieved from their FCCUs using LoTOx.[197] Dr. Lovegren testified that an outlet NO_x concentration of 20 ppm, which was largely derived from consent decrees, was considered when calculating the cost effectiveness of LoTOx because "this was the number that most sources were able to accept as an enforceable emission limit."[198] There is no other explanation as to why this figure was used instead of using the lower outlet concentrations achievable by LoTOx at other facilities since 2007.[199] Valero's attempts to minimize the actual pollution control capabilities of LoTOx by

[196] An HOC is a type of FCCU.

[197] CFEJ Ex. 14 (RECLAIM Report) at 0931-32; CFEJ Ex. 15 at 0866-67 (subsequent testing at the Marathon Texas City refinery confirms that LoTOx is capable of achieving a NO_x emission limit of less than 10 ppm.).

[198] Valero Ex. 200 (Lovegren Direct) at 47.

[199] Valero Ex. 200 (Lovegren Direct) at 47 (generally discussing the need for an unspecified compliance margin).

focusing on prior permitted limits are unpersuasive.[200] The overreliance on the pollution controls used at previously permitted facilities to arrive at a NO_x emission limit of 37 ppm is not BACT.[201] Rather, it seems that relying on technology implemented at already operational facilities would instead incentivize facilities to use older, less expensive, and ultimately less effective pollution controls than what is demonstrated by the pollution controls available. In this case, the preponderance of the evidence demonstrated that FCCUs using LoTOx achieve outlet concentrations ranging from 8 to 10 ppm.[202]

(ii) Valero's cost analysis for LoTOx and SCR is deficient

The ALJs conclude that Valero's cost analysis of LoTOx and SCR is deficient. Cost effectiveness is the "dollars per ton of pollutant emissions reduced"[203] and can be calculated in two ways: average cost and incremental cost. The average cost effectiveness is the annualized control cost divided by the annual emissions reduced by the control technology.[204] The incremental cost approach may be used to determine cost effectiveness for control devices if there are several types of control

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[200] Valero Ex. 200 (Lovegren Direct) at 46 ("Although the consent decree limits were not BACT limits, they clearly showed that add-on NO_x controls had become technically feasible and somewhat prevalent within the industry.")

[201] CFEJ Ex. 2 (APDG 6110) at 0349 ("It is not a sufficient argument for an applicant to state that a current project represents BACT simply because the previous project, at the same facility and/or a similar facility at the site, was recently approved as BACT with the proposed controls. It is important to ensure that any control technology advancements are considered in the control technology review (the reviewer should be aware that these advancements can happen at any time).").

[202] CFEJ Ex. 14 (RECLAIM Report); CFEJ Ex. A (Sahu Direct) at 41.

[203] CFEJ Ex. 1 (NSR Manual) at B.31.

[204] CFEJ Ex. 1 (NSR Manual) at B.36-.37.

devices as it is the difference in cost between two control options, and it should be considered in combination with the average cost.[205] In making these calculations, EPA's NSR Manual cautions that if an unrealistically low emission reduction potential is used for a control technology, an inflated cost effectiveness figure will result.

In addition, EPA's NSR Manual emphasizes that the principal purpose of the cost analysis is to determine if there are significant cost differences between those included in the application and other sources that have adopted the control technology:

> In the economical impacts analysis, primary consideration should be given to quantifying the cost of control and not the economic situation of the individual source. Consequently, applicants generally should not propose elimination of control alternatives on the basis of economic parameters that provide an indication of the affordability of a control alternative relative to the source. BACT is required by law. Its costs are integral to the overall cost of doing business and are not to be considered an afterthought. Consequently, for control alternatives that have been effectively employed in the same source category, the economic impact of such alternatives on the particular source under review should be not nearly as pertinent to the BACT decision making process as the average and, where appropriate, incremental cost effectiveness of the control alternative. Thus, where a control technology has been successfully applied to similar sources in a source category, an applicant should concentrate on documenting significant cost differences, if **any**, between the application of the control technology on those other sources and the particular source under review."[206]

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[205] CFEJ Ex. 1 (NSR Manual) at B.41-.44.

[206] CFEJ Ex. 1 (NSR Manual) at B.31 (emphasis in original).

In its briefing, Valero asserts that it has provided an annualized cost effectiveness estimate for the removal of NO_x emissions from the HOC's gas stream and that CFEJ is "confused" about the concepts of average and incremental cost effectiveness. The ALJs disagree. While Valero has supplied a cost effectiveness estimate for its specific project, it has done so in a vacuum. There is no evidence in the record concerning the relative costs of utilizing LoTOx or SCR or other technologies across the industry—which is what a BACT analysis requires. Instead, Valero and TCEQ rely on a $10,000 "threshold" to eliminate both LoTOx and SCR from its BACT analysis. [207] Further, when confronted with the range of costs for those technologies at other refineries included in the RECLAIM report, Valero is quick to discredit them and argue them unreliable.[208] Valero attempts to undercut the utility of the RECLAIM report by highlighting that it is designed for a nonattainment area, utilizes an "unusual cost accounting methodology," and is not meant to impose hard permit limits. While these statements may be true, they do not diminish the fact that there are refineries that are achieving much lower NO_x emissions than what Valero seeks in its own permit. Finally, even though it contests the value of the RECLAIM report, Valero has not provided alternative cost

[207] Tr. at 209-10; Valero Ex. 200 (Lovegren Direct) at 48.

[208] Valero Ex. 200 (Lovegren Direct) at 49. Valero also argues that differences in inlet and outlet concentrations materially impact the cost effectiveness values in the RECLAIM report, but it does so without citation to any record evidence. Valero Reply Br. at 22.

effectiveness figures across the industry for LoTOx or SCR for the ALJs to consider.[209]

In addition, the "technical differences" that Valero provides in its application for why it is unable to achieve a NO_x emissions limit of 20 ppm or lower are insufficient:

- Valero asserts that it will have to rebuild a wet scrubber, but Valero offers no evidence concerning the cost of that rebuild.[210]
- Valero asserts that the lower permitted emissions limits at other refineries are the result of consent decrees and are therefore generally unhelpful in BACT reviews, but this is not a "technical difference," nor does it explain why an emissions limit of 20 ppm is unachievable.[211]

Finally, the evidence in the record demonstrates that Valero's costs to install LoTOx may be similar to the costs to install LoTOx at other refineries. Dr. Lovegren testified that the cost-effectiveness of controlling NO_x emissions from the HOC unit to 10 ppm using LoTOx would be $24,092.68; to 8 ppm would be $22,092.68.[212]

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[209] In its closing briefing, Valero cites to the LoTOx costs at the Marathon Garyville Refinery, but these costs significantly exceed the LoTOx costs at issue in this case. Valero Br. at 29; Valero Reply Br. at 22 ("And as discussed herein, the Marathon Garyville petroleum refinery found that it would cost $40,370 per ton of NO_x to control NO_x emissions from its FCCU using LoTOx, which was determined to be economically unreasonable.").

[210] Valero Ex. D (Administrative Record) at 58.

[211] Valero Ex. D (Administrative Record) at 59.

[212] Valero Ex. 200 (Lovegren Direct) at 53.

Both values are close to the average cost effectiveness for LoTOx in the RECLAIM report.[213]

As argued by CFEJ, these cost calculations are based on 2014 dollars. If adjusted for inflation using the Consumer Price Index, the same method Valero's expert witness used, the cost effectiveness of LoTOx ranges from $13,840 per ton of NO_x removed to $38,407 per ton of NO_x removed, with an average cost effectiveness of $19,689.[214]

Accordingly, Valero has failed to demonstrate that the costs of implementing LoTOx or SCR are disproportionately high when compared to the cost of control in recent BACT determinations. Instead, Valero and the ED rely on an unsupported, arbitrary threshold of $10,000 rather than considering evidence of recent NO_x BACT determinations for FCCUs, which is what is required for a BACT analysis.[215]

V. TRANSCRIPTION COSTS

The Commission may assess reporting and transcription costs to one or more of the parties participating in a proceeding, and when doing so, must consider the following factors:

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[213] CFEJ Ex. 14 (RECLAIM Report) at 939.

[214] Valero Ex. 200 (Lovegren Direct) at 48-50; Bureau of Labor Statistics, U.S. Dep't of Labor, CPI Inflation Calculator https://data.bls.gov/cgi-bin/cpicalc.pl?cost1=10%2C631.00&year1=201412&year2=202307, https://data.bls.gov/cgi-bin/cpicalc.pl?cost1=29502&year1=201412&year2=202307, and https://data.bls.gov/cgi-bin/cpicalc.pl?cost1=15124&year1=201412&year2=202307 (last visited October 24, 2023).

[215] CFEJ Ex. 1 (NSR Manual) at B.45.

(A) The party who requested the transcript;

(B) The financial ability of the party to pay the costs;

(C) The extent to which the party participated in the hearing;

(D) The relative benefits of the various parties of having a transcript; . . . and

(G) Any other factor which is relevant to a just and reasonable assessment of costs.[216]

Additionally, the Commission will not assess reporting or transcription costs against the ED or OPIC because they are statutory parties who are precluded by law from appealing the Commission's decision.[217]

Valero submitted invoices for transcript costs totaling $8,806, including reporting fees, copies, and administrative fees. Both Applicant and CFEJ were represented by outside legal counsel—in CFEJ's case, a non-profit legal aid organization and a non-profit environmental law organization—and hired expert witnesses for the hearing.

Valero requests an allocation of 30% of the transcript costs to CFEJ and 70% to itself. CFEJ argues that it is a non-profit organization with fewer financial resources than Valero and to require it to bear any transcript costs beyond those it has already incurred would be financially burdensome.

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[216] 30 Tex. Admin. Code § 80.23(d)(1).

[217] 30 Tex. Admin. Code § 80.23(d)(2); *see* Tex. Water Code §§ 5.228, .273, .275, .356.

Under the circumstances, and in considering the factors, is the ALJs recommend that the Commission assess all the transcription costs to Valero. As the applicant, Valero bears the burden of proof. It also participated in the hearing extensively, used the transcript throughout its briefing, and has the financial resources to bear the costs. While CFEJ did make use of the transcript in its briefing, it is a non-profit entity that has already expended resources in procuring an expert witness to represent its interests in this case. Further, the ALJs find the fact that CFEJ prevailed in exposing deficiencies in the Draft Permit to be relevant to cost apportionment. For all these reasons, it is just and reasonable for Valero to bear all of the transcript costs.

VI. CONCLUSION

The ALJs find that Valero has met its burden of proof on all issues except for the required demonstration of BACT for its NO_x emissions. Therefore, the ALJs recommend that the Application and Draft Permit be denied. The ALJs also recommend that all findings of fact proposed by the parties that are not contained in the Proposed Order be denied.

Signed November 20, 2023

Amy Davis
Administrative Law Judge

Holly Vandrovec
Administrative Law Judge

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AN ORDER
DENYING THE APPLICATION BY
VALERO REFINING-TEXAS, LP FOR MODIFICATION TO STATE AND PREVENTION OF SIGNIFICANT DETERIORATION AIR QUALITY PERMIT NOS. 38754 AND PSDTX324M15;
TCEQ DOCKET NO. 2023-0203-AIR;
SOAH DOCKET NO. 582-23-14975

On _____, the Texas Commission on Environmental Quality (TCEQ or Commission) considered the applications of Valero Refining-Texas, LP for Modification to State and Prevention of Significant Deterioration Air Quality Permit Nos. 38754 and PSDTX324M15 for its Bill Greehey Refinery West Plant in Corpus Christi, Nueces County, Texas. A Proposal for Decision (PFD) was issued by Amy Davis and Holly Vandrovec, Administrative Law Judges (ALJs) with the State Office of Administrative Hearings (SOAH) and considered by the Commission.

After considering the PFD, the Commission makes the following findings of fact and conclusions of law.

I. FINDINGS OF FACT

Background

1. Valero Refining-Texas LP (Applicant or Valero) is proposing to amend air quality Permit Nos. 38754 and PSDTX324M14 for the Bill Greehey Refinery West Plant in Corpus Christi, Texas (Facility or West Refinery).

2. Valero seeks approval of a project (the HOC Reconfiguration Project) that will require new refining units to change the type of crude oil the Facility can receive and process.

3. The HOC Reconfiguration Project includes installing a new riser reactor in the Facility's heavy oil cracker (HOC), which is a type of fluid catalytic cracking unit (FCCU or cracker) configured to handle different feedstock than an FCCU, and a new gas plant.

4. On September 30, 2021, Valero applied for an amendment to state air quality and Prevention of Significant Deterioration (PSD) permits for its HOC Reconfiguration Project (the Application). The Application included all affected facilities associated with the HOC Reconfiguration Project and was supplemented to provide additional supporting information. A complete copy of the Application was included in the Administrative Record.

5. Approval of the Application would authorize Valero to construct a new utility steam boiler, a new cooling tower, a new gas plant, a new sour water stripper, a new liquefied petroleum gas (LPG) Merox Treating Unit, a new Selective Hydrogenation Unit, a new C3/C4 Splitter Tower, and two new butane/butylene bullet tanks.

6. The Application seeks authorization for the Facility to emit the following air contaminants: ammonia, carbon monoxide, hydrogen sulfide, nitrogen oxides (NO_x), organic compounds, particulate matter (PM) including particulate

matter with diameters of 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and greenhouse gases.

7. The Application includes a complete Form PI-1 General Application signed by Valero's authorized representative. The Application was submitted under the seal of a Texas registered professional engineer.

8. The appropriate permit fee of $75,000 was submitted with the Application and Valero is not delinquent in the payment of any fee, tax, or penalty owed by the State of Texas.

9. TCEQ's Executive Director (ED) declared the Application administratively complete on October 5, 2021, and technically complete on May 19, 2022, on which date the ED rendered his preliminary decision to approve the Application.

10. The ED issued the Final Draft Permit and rendered his final decision to approve the Application on December 2, 2022, when he issued his Response to Public Comment.

Notice and Jurisdiction

11. On October 5, 2021, the Chief Clerk issued Notice of Receipt of Application and Intent to Obtain Air Permit and provided mailed notification to all agencies, regulatory bodies, and other persons and entities to which notification was required.

12. On October 14, 2021, Valero published Notice of Receipt of Application and Intent to Obtain Air Permit in English as required in the *Corpus Christi Caller Times*.

13. On October 15, 2021, Valero published Notice of Receipt of Application and Intent to Obtain Air Permit in Spanish as required in *Tejano y Grupero News*.

14. Valero posted signs in English and Spanish as required for the duration of the initial public comment period and provided appropriate public notice verification of such on November 16, 2021.

15. On May 19, 2022, the Chief Clerk issued a Notice of Application and Preliminary Decision and provided mailed notification to all agencies, regulatory bodies, and other persons and entities to which notification was required.

16. On June 1, 2022, Valero published the Notice of Application and Preliminary Decision as required in the *Corpus Christi Caller Times.*

17. On June 1, 2022, Valero published the Notice of Application and Preliminary Decision in Spanish as required in *Tejano y Grupero News*.

18. The ED held a public meeting in Corpus Christi on July 11, 2022, following the provision of all required public notice. The public comment period ended on July 11, 2022.

19. Copies of the Application and other required information were made available for public inspection for the required duration at the TCEQ central office, the TCEQ regional office in Corpus Christi, and the Owen R. Hopkins Public Library.

20. On December 2, 2022, the ED issued its Response to Public Comments. In response to public comment, the ED changed Draft Permit Special Conditions Nos. 11, 15, 20, 25, 39.B(2).

21. On December 2, 2022, the ED issued his decision to approve the Application.

22. On January 13, 2023, Valero requested that the Draft Permit be directly referred to SOAH pursuant to Texas Water Code section 5.557(a) and 30 Texas Administrative Code (TAC) section 55.210(a).

Proceedings at SOAH

23. On April 7, 2023, the Chief Clerk issued the Notice of Public Hearing and provided mailed notification to all agencies, regulatory bodies, and other persons and entities to which notification was required.

24. On April 21, 2023, Valero published Notice of Public Hearing in English as required in the *Corpus Christi Caller Times*.

25. On April 15, 2023, Valero published Notice of Public Hearing in Spanish in *Tejano y Grupero News*.

26. On April 21, 2023, the Chief Clerk filed the Administrative Record with SOAH. The Administrative Record was supplemented by the Chief Clerk by filing dated May 3, 2023.

27. On May 22, 2023, Administrative Law Judges (ALJs) Amy Davis and Holly Vandrovec held a preliminary hearing. SOAH found that notice was proper, took jurisdiction over the Application without objection, and entered an agreed procedural schedule for the hearing.

28. The Administrative Record was admitted into evidence without objection.

29. On May 22, 2023, the ALJs named the following statutory parties as parties to this permitting proceeding: Valero, the ED, and TCEQ's Office of Public Interest Counsel (OPIC).

30. At the preliminary hearing on May 22, 2023, the ALJs considered requests for party status filed by Citizens for Environmental Justice (CFEJ) and Hillcrest Residents Association, and accepted evidence and argument on the issue of whether either organization could demonstrate associational standing. No other party appeared at the preliminary hearing and sought party status.

31. At the preliminary hearing on May 22, 2023, the ALJs heard testimony from Mr. Lamont Taylor, who appeared as a member and representative of Hillcrest Residents Association. After considering the applicable law and evidence offered at the preliminary hearing, the ALJs determined that Hillcrest Residents Association did not meet its burden to show that Mr. Taylor is an affected person and that Hillcrest Residents Association is an affected association.

32. At the preliminary hearing on May 22, 2023, the ALJs heard testimony from Ms. Tammy Foster and Ms. Patricia Placker, who appeared as members and representatives of CFEJ. After considering the applicable law and evidence offered at the preliminary hearing, the ALJs granted party status to CFEJ based on a determination that its member Patricia Placker is an affected person and CFEJ is an affected association.

33. The hearing on the merits was held by Zoom videoconferencing on August 22, 2023, before ALJs Amy Davis and Holly Vandrovec.

34. The record in the contested case hearing closed on September 21, 2023, with the filing of replies to closing arguments.

Prima Facie Demonstration

35. The filing of the Administrative Record established a prima facie demonstration that a final permit, if issued in accordance with the Draft Permit, meets all state and federal legal and technical requirements and protects human health and safety, the environment, and physical property.

36. The agreed procedural schedule in SOAH Order No. 1 allowed any party to present evidence to rebut the prima facie demonstration by demonstrating that one or more provisions in the Draft Permit violate a specifically applicable state or federal requirement that relates to a matter directly referred to SOAH or referred by the Commission.

37. The agreed procedural schedule in SOAH Order No. 1 allowed Valero and the ED to present additional evidence to support the ED's Draft Permit if the prima facie demonstration was rebutted.

38. CFEJ presented evidence that sought to demonstrate that the emissions limits for PM and NO_x for the HOC (EPN No. 121) in the Draft Permit do not reflect Best Available Control Technology (BACT) as required. No party presented evidence that sought to rebut the prima facie demonstration that any other provision in the Draft Permit violates a specifically applicable state or federal requirement that relates to a matter directly referred to SOAH or referred by the Commission.

39. Accordingly, the Administrative Record establishes Valero's prima facie demonstration and satisfies Valero's burden of proof with respect to all undisputed issues.

40. The Application was complete and included all necessary supporting information and appropriate TCEQ forms.

41. The Application includes a complete Form PI-1 General Application signed by Applicant's authorized representative. A Revised Form PI-1 signed by Valero's authorized representative was submitted on December 12, 2021. Valero submitted another Revised Form PI-1 signed by Valero's authorized representative on April 7, 2022.

42. The Application was submitted under the seal of a Texas registered professional engineer.

43. The Application addressed all sources of air emissions associated with the proposed Project at the Valero West Refinery that are subject to permitting under TCEQ rules.

Contested Issues

Whether the controls proposed in the draft permit constitute Best Available Control Technology (BACT)

44. TCEQ BACT evaluation is conducted using a three-tiered analysis approach. In the first tier, controls accepted as BACT in recent permit reviews for the same process are approvable as BACT in a current review if no new technical developments have occurred that would justify additional controls as economically or technically reasonable.

45. Environmental Protection Agency (EPA) BACT evaluation is conducted using a top down method. The most effective control that is not eliminated as technically infeasible or economically unreasonable is BACT.

46. Either EPA's top down methodology or TCEQ's three-tiered BACT review may be used because both should result in the same BACT determination.

47. BACT for any particular industry is not static and is subject to change over time as technology progresses and as process improvements occur.

48. The BACT analyses in the Application used TCEQ's three-tiered methodology.

49. Valero's BACT analyses considered information from EPA's RACT/BACT/LAER Clearinghouse (RBLC), consent decrees, recent

permit reviews for other petroleum refineries, TCEQ's Tier 1 BACT Guidelines, and other economic analyses.

50. In TCEQ's Tier I analysis, the reviewer should, first, review the proposed emission reduction options; second, review the proposed BACT performance elements; and third, compare the proposed emission reduction performance level with the performance levels that have been accepted as BACT in recent reviews for the same industry. The proposed emission reduction performance level should be at least equivalent to those previously accepted as BACT in recent permit reviews.

51. TCEQ's Tier II analysis is only required where BACT requirements have not already been established for a particular process/industry or if there are compelling technical differences between the applicant facility's process and others in the same industry. The Tier II analysis involves consideration of controls that have been accepted as BACT in recent permits for similar air emission streams in a different process or industry.

52. A BACT evaluation will proceed to Tier III only if the first two tiers of evaluation have failed to identify an emission reduction option that is technically practicable and economically reasonable.

53. In TCEQ's Tier III analysis, the applicant must identify all emission reduction options; eliminate technically infeasible options; rank remaining emission reduction options in terms of total emissions reduced; perform quantitative cost analysis to determine the cost-effectiveness (dollars per ton of pollutant reduced) of each emission reduction option; and select BACT based on cost-effectiveness and performance. A Tier III BACT evaluation does not consider the effect of emission reduction costs on corporate economics.

54. Under TCEQ's guidance document, BACT is determined on a case-by-case basis. Before accepting a proposed BACT, any new technical developments which may have led to new emission reduction option(s) must be considered. BACT is technology-forcing and technology-driving and BACT determinations made over time should tend to be more stringent.

55. The permit reviewer should instruct the applicant to perform a detailed technical and economic analysis of any new or previously unconsidered

emission reduction options that the reviewer identifies. The procedures for the detailed analysis are the same as those used in a Tier III BACT analysis.

56. If the analysis demonstrates that the identified emissions reduction option(s) is technically practicable and economically reasonable, the applicant must propose an overall emission reduction performance level that is at least equivalent to that of the newly identified option(s).

57. If no such options are identified and the overall emission reduction performance of the proposed BACT is at least equivalent to what has been accepted in recent permit reviews for the same industry, the BACT proposal should be accepted as satisfying BACT requirements.

58. The BACT analysis must be well documented in the administrative record.

59. Economic reasonableness or cost effectiveness is based on the cost per ton of emissions removed. TCEQ follows standard EPA methodology in evaluating cost effectiveness.

60. An applicant should document the basis for equipment cost estimates with data from equipment vendors or with reference sources. Rejection of more effective technology based on cost must be supported by a reasoned explanation, based on objective economic data, which includes consideration of average cost effectiveness.

61. Average cost effectiveness is the total annualized costs of control divided by the annual emission reductions. Annual emission reduction is the difference between the baseline emission rate, which represents the realistic upper boundary of uncontrolled emissions for the source, and the controlled emission rate.

62. Incremental cost effectiveness compares the costs and emissions level of a control option to those of the next most stringent option. Incremental cost alone cannot be used to argue for one alternative over another.

63. To justify elimination of a control technology as economically unreasonable, an applicant should demonstrate that the costs of pollutant removal for the control technology are disproportionately high when compared to the cost of control for the pollutant in recent BACT determinations.

64. When evaluating the total or incremental cost effectiveness of a control alternative, an applicant should ensure the assumptions made are reasonable and supportable, to avoid inflating the cost-effectiveness figures.

65. Using a lower baseline emissions inlet value has the effect of substantially inflating the cost of a control option, making the control option appear less cost effective.

Whether the emission limits for PM from the HOC in the Draft Permit constitute BACT

66. The HOC's cracking process involves the deposition of carbonaceous hydrocarbons, or coke, onto a catalyst. A catalyst regenerator then burns coke from the catalyst to reactivate it. The burning of coke generates PM, among other emissions. The emissions limitation is therefore expressed as pounds of PM per pounds of coke burned off.

67. PM emissions from Valero's HOC are controlled using the Belco Scrubber, a wet gas scrubber.

68. Valero proposed a PM limitation of 1 pound (lb) /1000 lbs of coke burn.

69. Valero conducted a Tier I BACT analysis for PM emissions to determine the proposed PM limit.

70. TCEQ has established a 1 lb/1000 lbs coke burn Tier I BACT limit for PM emissions from FCCUs.

71. The record does not include a BACT analysis supporting a more stringent BACT limit for PM from the HOC.

72. The record includes no evidence of new control technology that consistently produces lower PM emissions limits than a wet gas scrubber.

73. The Total Refinery (Total) in Port Arthur, Texas has a PM limit of 0.82 lb/1000 lb coke burn. Total was motivated to propose and accept a limit of 0.82 lb/1000 lb coke burn to avoid state permitting review and federal PSD review, even though TCEQ viewed Tier I BACT as 1 lb/1000 lb coke burn at the time the permit was issued.

74. Total's PM limit can be characterized as "beyond BACT." No BACT analysis (including any economic analysis) was performed to arrive at Total's permitted PM limit.

75. There is no evidence that rebuilding Valero's wet gas scrubber would actually allow Valero to meet a lower limit.

Whether the emission limits for NO_x from the HOC in the Draft Permit constitute BACT

76. Valero determined that Tier I was not sufficient for NO_x emissions from the HOC and conducted a Tier II and Tier III BACT analyses for NO_x emissions.

77. Valero's Tier II and Tier III BACT analysis for NO_x included a survey of recent permitting decisions, the RBLC, and consent decrees involving petroleum refineries, which indicated that the lowest permitted NO_x emissions limits were 20 ppm.

78. Valero contends that a NO_x emissions limit of 37 ppm is BACT for the HOC.

79. The current NO_x permit limit for the HOC is 37 ppm, which was the outcome of Valero's system-wide consent decree.

80. Valero identified two add-on control technologies capable of achieving a NO_x limit of 20 ppm: low temperature oxidation (LoTOx) technology and selective catalytic reduction (SCR).

81. Since meeting a limit of 20 ppm would require retrofitting the Valero West Refinery with LoTOx or SCR technology, Valero proceeded to Tier II and Tier III analyses to determine whether implementation of such technical developments would be economically reasonable.

82. Valero's Tier II analysis did not identify similar industries for which applicable controls could be identified.

83. Valero's Tier III analysis included an evaluation of the cost-effectiveness of controlling NO_x emissions (expressed as dollars per ton of pollutant reduced) from the HOC. For LoTOx, the cost-effectiveness evaluation was based on capital cost and annual operating cost estimates based on Valero's installation of LoTOx technology at two of its other refineries. For SCR, the

cost-effectiveness calculation was based on a third-party engineering study that presented capital cost and annual operating cost estimates of installing SCR.

84. The cost-effectiveness evaluation also requires determination of an appropriate outlet (after control) and inlet (before control) concentration of NO_x to determine the potential emissions reduction (tons per year), which is the difference between controlled emissions and uncontrolled emissions for the emission reduction option.

85. An inlet concentration in a cost calculation should be a baseline emissions rate without additional pollution controls. Baseline emissions may be assumed to be the emissions from the lower polluting process itself.

86. In the cost analysis equation, a larger outlet concentration would lower the overall cost of pollutant removal.

87. Based on cost information from LoTOx and SCR manufacturers, a level of 10 ppm NO_x or less is feasible and cost-effective for FCCUs.

88. Current installations of LoTOx in refineries have achieved NO_x levels of 8 ppm – 10 ppm from FCCUs. Manufacturers have confirmed that LoTOx can be designed to achieve 2 ppm NO_x from current inlet concentrations for FCCUs.

89. Valero estimated the cost of LoTOx with a control efficiency of 20 ppm.

90. Valero's cost analysis of using LoTOx to control NO_x is not based on reasonable assumptions about the actual control efficiency of LoTOx.

91. Valero did not consider the average cost effectiveness of installing LoTOx to reduce emissions of NO_x.

92. The cost effectiveness for LoTOx ranges from $13,840 per ton NO_x remove to $38,407 per ton of NO_x removed, with an average cost effectiveness of $19,689.

93. Valero's stated cost effectiveness for using LoTOx to reach a level of 8 ppm to 10 ppm of $22,092.68 to $24,092.68 is within the range of cost effectiveness

and close to the average cost effectiveness of installing LoTOx at other refineries.

94. The TCEQ does not have a bright-line test for determining economic reasonableness.

95. Valero's Application omitted any cost analysis for SCR.

96. SCR is available, demonstrated in practice, and technically feasible.

97. SCR can be designed to reduce 95%-98% NO_x emissions from FCCUs and achieve 2 ppm NO_x while maintaining a low ammonia slip of less than 5 ppm.

98. SCR can be used with full burn crackers like Valero's HOC.

99. Valero estimated the cost of SCR with a control efficiency of 20 ppm.

100. Valero's cost analysis of using SCR to control NO_x is not based on reasonable assumptions about its actual control efficiency.

101. Valero did not consider the average cost effectiveness of installing SCR to reduce its emissions of NO_x.

102. Valero failed to establish that the use of SCR control technology to reduce NOx emissions is economically unreasonable.

Transcription Costs

103. The total cost for recording and transcribing the preliminary hearing and hearing on the merits was $8,806.

104. The transcript was required by SOAH's rules.

105. Valero, CFEJ, the ED, and OPIC all participated in the contested case hearing and benefitted from having a transcript for use in preparing written closing arguments and responses.

106. Transcript costs cannot be assessed against the ED or OPIC because they are statutory parties who are precluded from appealing the decision of TCEQ.

107. Valero and CFEJ participated fully in the hearing and each hired expert witnesses for the hearing.

108. Valero and CFEJ presented testimony and exhibits.

109. CFEJ is a community group represented by a non-profit legal aid organization and a non-profit environmental law organization.

110. Valero is a large corporation.

111. CFEJ prevailed in exposing deficiencies in the Draft Permit.

112. It is appropriate to assess all transcription costs to Valero.

II. CONCLUSIONS OF LAW

1. TCEQ has jurisdiction over the emission of air contaminants and authority to issue a permit under Texas Health and Safety Code §§382.011 and .0518 and Texas Water Code § 5.013.

2. The Application was referred to SOAH under Texas Water Code § 5.557.

3. SOAH has jurisdiction to conduct a hearing and to prepare a proposal for decision in contested cases referred by TCEQ under Texas Government Code § 2003.047.

4. Notice was provided in accordance with Texas Water Code § 5.5553; Texas Health and Safety Code §§ 382.0516, .0517, and .056; Texas Government Code §§ 2001.051 and .052; and 30 Texas Administrative Code chapter 39.

5. Valero properly submitted the Application to TCEQ pursuant to Texas Health and Safety Code §§ 382.0515 and .0518; and 30 Texas Administrative Code §§ 116.110, .111, and .140.

6. The Application was submitted to TCEQ for a modification to a state and PSD air permit on September 30, 2021. As such, the Application is subject to the legal and regulatory provisions that apply to applications submitted to TCEQ

after September 1, 2015. *See* Tex. Gov't Code § 2003.047(i-1); 30 Tex. Admin. Code §§ 55.203(d), 55.205(b), 55.211(c)(2), and 80.127(h).

7. A direct referral request for a contested case hearing on a permit application by either the applicant or the ED shall be referred to SOAH to determine whether the application complies with all applicable statutory and regulatory requirements. Tex. Water Code § 5.557; 30 Tex. Admin. Code § 55.210(b).

8. The Application is subject to the requirements of Texas Government Code §2003.047(i-1)-(i-3).

9. The filing of the Application, the Draft Permit, the preliminary decision issued by the ED, and other supporting documentation in the administrative record of the Application established a prima facie case that: (i) the Draft Permit meets all state and federal legal and technical requirements; and (ii) the permit, if issued consistent with the Draft Permit, would protect human health and safety, the environment, and physical property. Tex. Gov't Code § 2003.047(i-1).

10. A party may rebut the prima facie demonstration by presenting evidence that: (1) relates to an issue directly referred; and (2) demonstrates that one or more provisions in the Draft Permit violates a specifically applicable state or federal requirements. Tex. Gov't Code § 2003.047(i-2); 30 Tex. Admin. Code §§ 80.17(c)(2).

11. If a party rebuts the prima facie demonstration, the applicant and the ED may present additional evidence to support the draft permit. Tex. Gov't Code § 2003.047(i-3); 30 Tex. Admin. Code § 80.17(c)(3).

12. The applicant retains the burden of proof regarding the sufficiency of the application and compliance with the necessary statutory and regulatory requirements. 30 Tex. Admin. Code § 80.17(a).

13. The burden of proof is on the applicant by a preponderance of the evidence. 30 Tex. Admin. Code § 80.17(a).

14. CFEJ had the burden of proof to show affected person status. 30 Tex. Admin. Code §§ 80.109(a), (b)(5), 55.203.

15. CFEJ met the requirements for associational standing. 30 Tex. Admin. Code § 55.205.

16. The federal Clean Air Act allows states to seek approval from EPA to administer their state's PSD permitting program. Approvable programs must be incorporated into a State Implementation Plan (SIP) and must meet applicable federal Clean Air Act requirements. 42 U.S.C. § 7401(a)(2)(A).

17. The Commission issues PSD air permits for proposed major sources and major modifications in attainment or unclassifiable areas in Texas subject to the approved Texas SIP. 40 C.F.R. § 52.2270. TCEQ's current regulations and the approved Texas SIP incorporate by reference the federal PSD rules, including the federal definition of BACT, federal rules regarding technology reviews, and federal rules regarding source impacts analysis. 30 Tex. Admin. Code §§ 116.111(a)(2)(c), .160(c)(2)(A)-(B); 40 C.F.R. § 52.2270.

18. The Commission is to issue a permit for a facility that may emit air contaminants upon finding that: (1) the proposed facility will use at least BACT, considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility; and (2) there is no indication that the emissions from the facility will contravene the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property. Tex. Health & Safety Code § 382.0518(b).

19. The evidence in the record demonstrates that Valero failed to meet its burden of proof regarding its BACT analysis for NO_x emissions from the HOC, but met its burden of proof regarding all other applicable statutory and regulatory requirements.

20. TCEQ defines BACT as "[a]n air pollution control method for a new or modified facility that through experience and research, has proven to be operational, obtainable, and capable of reducing or eliminating emissions from the facility, and is considered technically practical and economically reasonable for the facility. The emissions reduction can be achieved through technology such as the use of add-on control equipment or by enforceable changes in production processes, systems, methods, or work practice." 30 Tex. Admin. Code § 116.10(1).

21. BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness. TCEQ Air Permit Reviewer Reference Guide (APDG 6110) at 101.

22. The performance of the proposed BACT "must be compared to the emission reduction performance levels that have been previously accepted as BACT in recent reviews for the same industry." TCEQ Air Permit Reviewer Reference Guide (APDG 6110) at 101.

23. "[W]hen reviewing a control technology with a wide range of emission performance levels, it is presumed that the source can achieve the same emission reduction level as another source unless the applicant demonstrates that there are source-specific factors or other relevant information that provide a technical, economic, energy or environmental justification to do otherwise." New Source Review Workshop Manual at B.24 (Oct. 1990).

24. The proposed emission reduction performance should be "at least equivalent to those previously accepted as BACT" in recent permit reviews. TCEQ Air Permit Reviewer Reference Guide (APDG 6110) at 101.

25. If no technological developments which have led to new emission reduction options that may not have been considered in past permit reviews for the same industry are identified, and the overall emission reduction performance of the proposed BACT is "at least equivalent to what has been accepted in recent permit reviews for the same industry, the BACT proposal should be accepted as satisfying BACT requirements." TCEQ Air Permit Reviewer Reference Guide (APDG 6110) at 101.

26. Valero's proposed PM emissions limit of 1 lb/1,000 lb coke burn off for its HOC satisfies BACT requirements.

27. Valero's BACT determination for NO_x is deficient because Valero omitted any cost analysis for SCR and did not utilize reasonable assumptions about the control efficiency of LoTOx.

28. No transcript costs may be assessed against the ED or OPIC because the TCEQ's rules prohibit the assessment of any cost to a statutory party who is precluded by law from appealing any ruling, decision, or other act of the Commission. 30 Tex. Admin. Code § 80.23(d)(2).

29. Factors to be considered in assessing transcript costs include: the party who requested the transcript; the financial ability of the party to pay the costs; the extent to which the party participated in the hearing; the relative benefits to the various parties of having a transcript; and any other factor which is relevant to a just and reasonable assessment of the costs. 30 Tex. Admin. Code § 80.23(d)(1).

30. Considering the factors in 30 Texas Administrative Code § 80.23(d)(1), a reasonable assessment of hearing transcript costs against parties to the contested case proceeding is that Valero should pay $8,806 of the transcript costs.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, IN ACCORDANCE WITH THESE FINDINGS OF FACT AND CONCLUSIONS OF LAW, THAT:

31. The Application of Valero for Air Quality Permit Nos. 38754 and PSDTX324M15 is denied.

32. Valero shall pay $8,806 of the transcription costs.

33. The Commission adopts the Executive Director's Response to Public Comment in accordance with 30 Texas Administrative Code § 50.117. If there is any conflict between the Commission's Order and the Executive Director's Responses to Public Comments, the Commission's Order prevails.

34. All other motions, requests for entry of specific Findings of Fact or Conclusions of Law, and any other requests for general or specific relief, if not expressly granted herein, are hereby denied.

35. The effective date of this Order is the date the Order is final, as provided by Texas Government Code § 2001.144 and 30 Texas Administrative Code § 80.273.

36. TCEQ's Chief Clerk shall forward a copy of this Order to all parties.

37. If any provision, sentence, clause, or phrase of this Order is for any reason held to be invalid, the invalidity of any provision shall not affect the validity of the remaining portions of this Order.

ISSUED:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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Jon Niermann, Chairman for the Commission